EBFM Governance
- Aussie style

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Outline

- Ecosystem based management (EBM) in Oz
- Ecosystem based fisheries management (EBFM) in Oz
- Key issues from the MEPS Theme Section
- The SESSF – a case study of attempted moves to EBFM
- Where have we got to?
- Topics for discussion

EBM - The Legislative & Policy Landscape

Fisheries Management Act 1991

- Ecologically sustainable development
- Economic efficiency
- Cost effective management

EPBC Act 1999

- Environmental audit and assessment of fisheries
- Endangered species assessments
- National representative system of MPAs

Australia's Oceans Policy 1999

- Ecosystem based multiple use management
- Regional Marine Planning

EBM - Agency Responsibilities

Australian Fisheries Management Authority (AFMA) (1992)

- Implementation of FMA
- Development and operation of Fisheries Management Plans
- Co-management approach

Department of Environment and Heritage (DEH)

- Implementation of EPBC Act
- Environmental audit of AFMA
- Carriage of NRSMPA

National Oceans Office (2000)

- Implementation of AOP
- Development of Regional Marine Plans

Coordinating and implementing EBM

Whole of Government approach

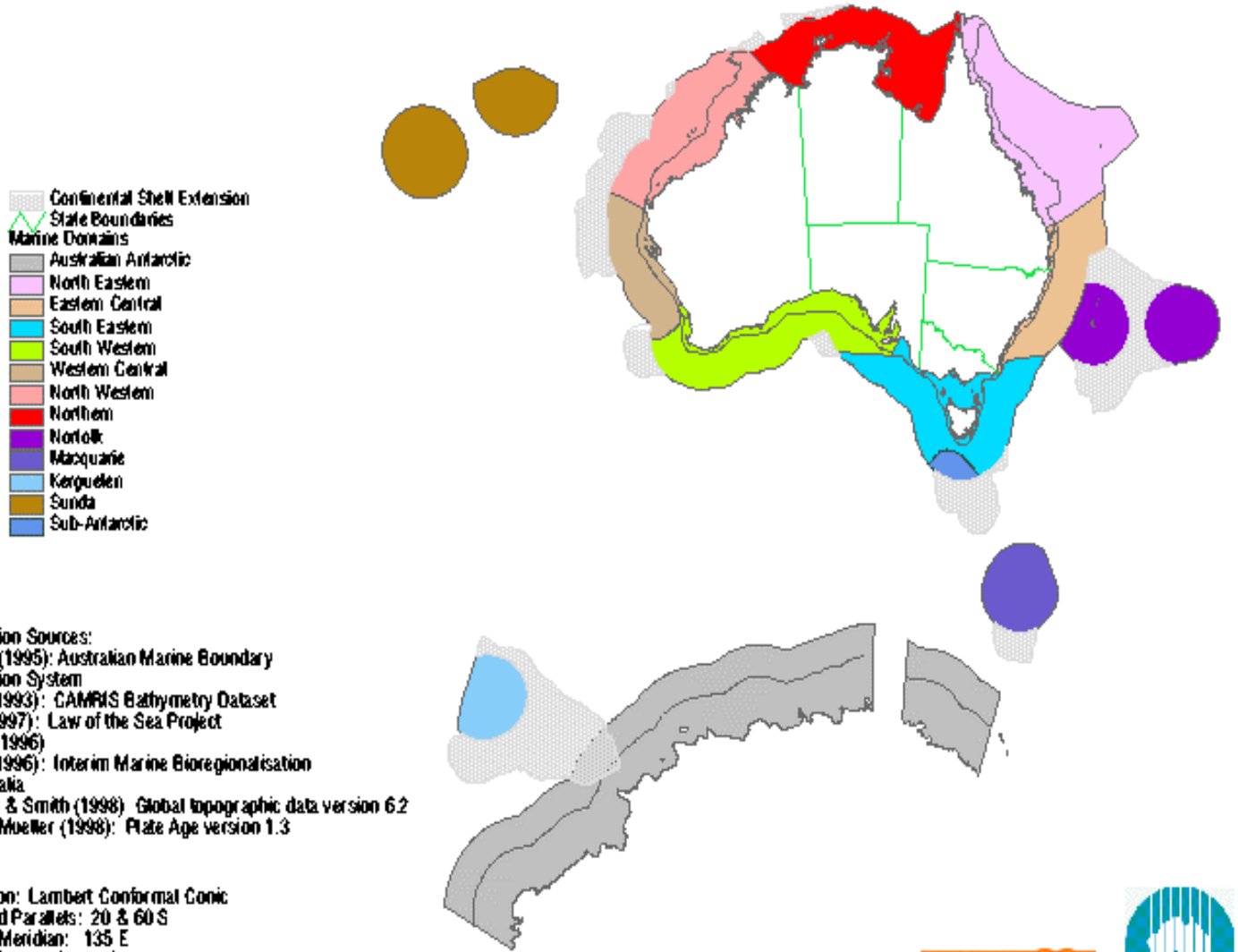
Explicit in

- Regional Marine Planning
- NRSMPA

Based around national “bioregionalization”

- Hierarchical spatial system for ecosystem and habitat classification
- Large marine domain → Province → Bioregion → …

Large Marine Domains of Australia's EEZ



Information Sources:
AUSLIG (1995): Australian Marine Boundary Information System
CSIRO (1993): CAMRIS Bathymetry Dataset
AGSO (1997): Law of the Sea Project
GEBCO (1996)
CSIRO (1996): Interim Marine Bioregionalisation for Australia
Sandwell & Smith (1998) Global topographic data version 6.2
Dietmar Mueller (1998): Plate Age version 1.3

Projection: Lambert Conformal Conic
Standard Parallels: 20 & 60 S
Central Meridian: 135 E
Ellipsoid: Australian

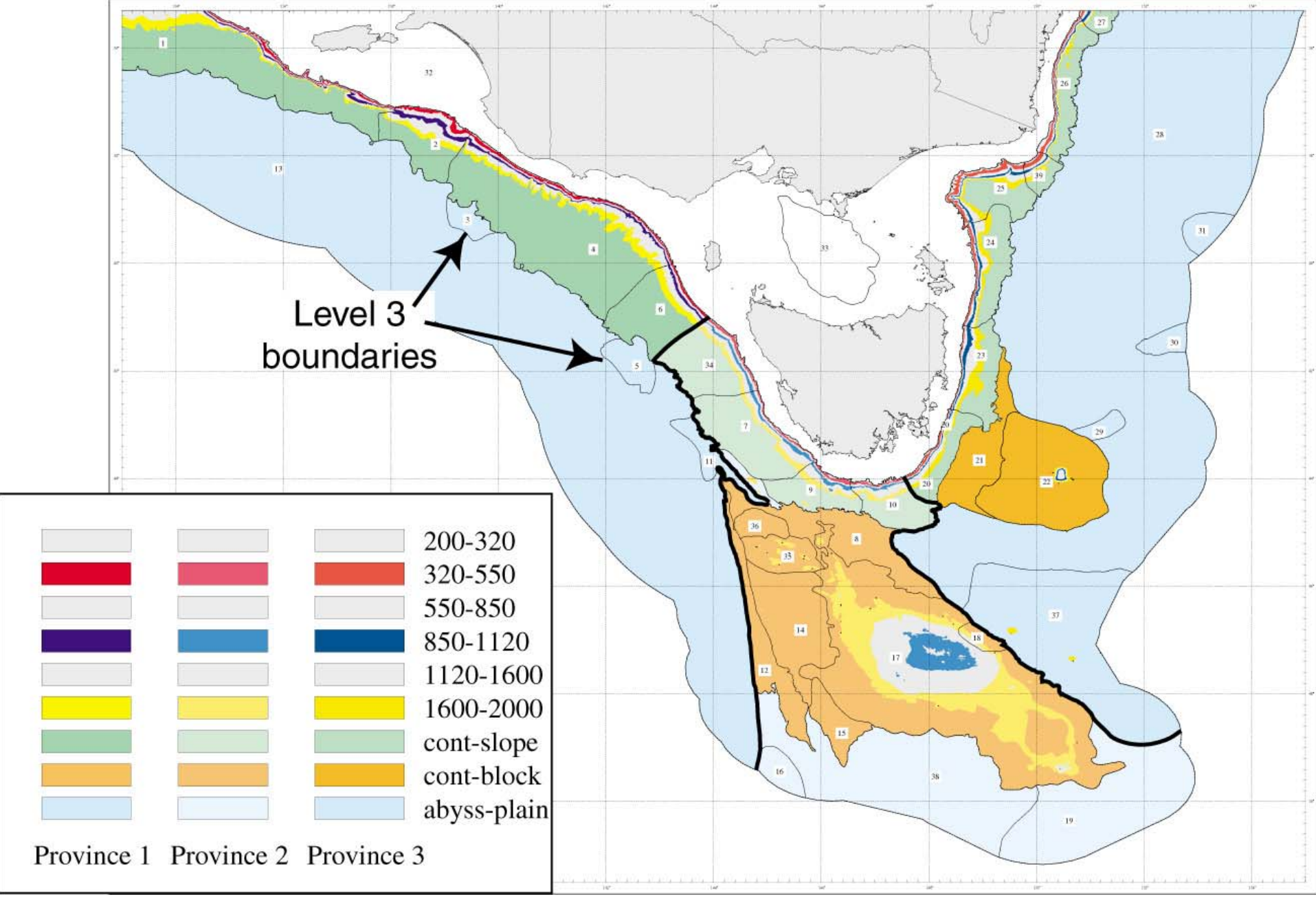
Reference: Vincent Lyne
CSIRO Marine Research

Version 1.04
25 January 2000

Environment Australia
Department of the Environment

CSIRO

AGSO



Level 3 bioregions for SE Australia

EBFM in Australia

Derives from earlier “ESD” approach

EBFM is fisheries ESD with a bit more emphasis on the “E”?

Pragmatic approach – dealing with the 5 components of ecological impacts of fishing

- target species
- by-catch species
- PET species
- habitats
- communities and trophic impacts

- cf Pikitch et al (Science Forum)

EBFM in Australia

Progress to date (mainly on reporting and tools)

- National ESD reporting framework
- Development and testing of ecological indicators
- Development and application of ERA
- Broadening and application of MSE

Key issues from the MEPS debate

General agreement on the key causes of unsustainability

- too much capacity and effort
- rapid increase in fishing technology (nowhere to hide)
- failures in governance (including incentive structures)

General agreement on solutions

- reduce effort
- gear controls and/or MPAs

Fundamental disagreement about governance

- top down versus bottom up
- role of fishers in governance

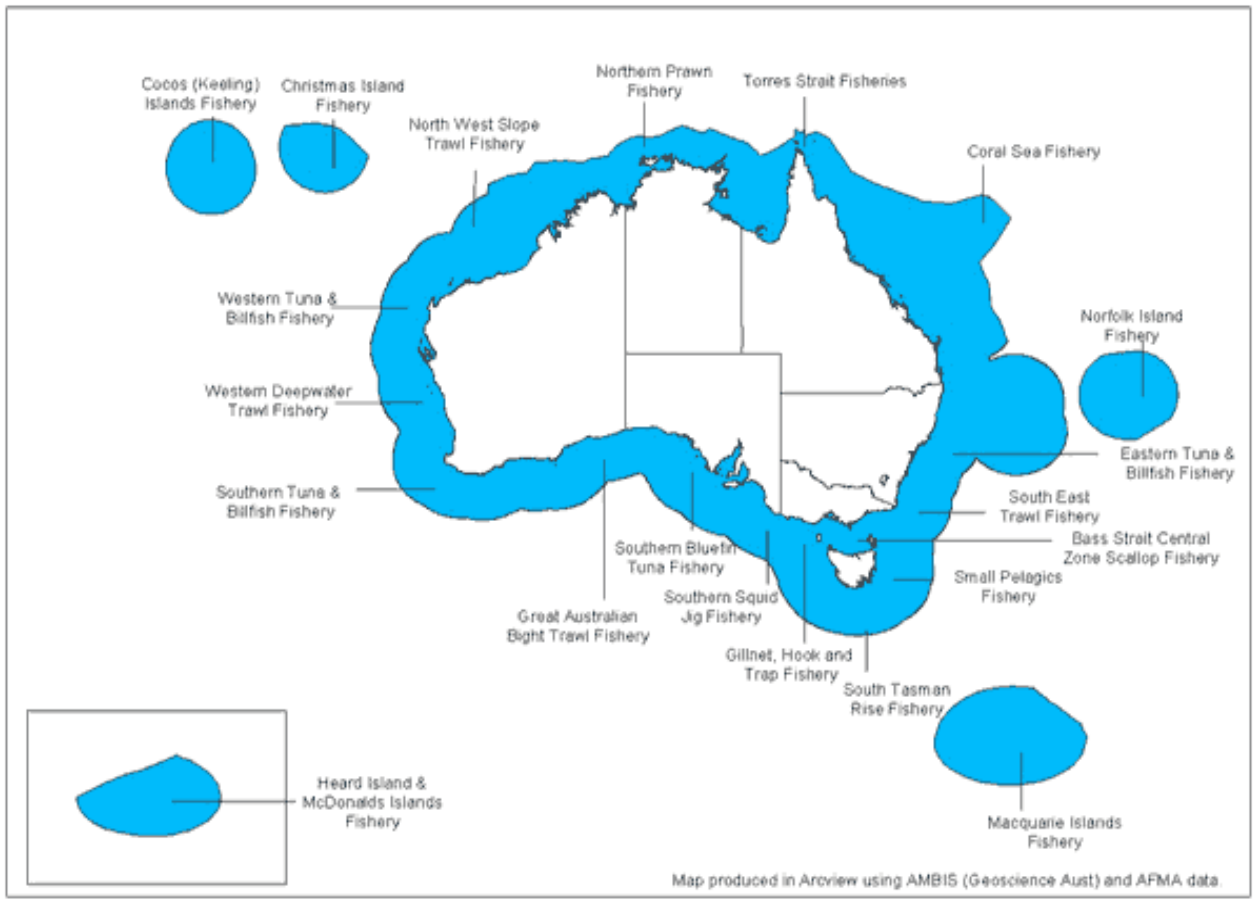
Key issues from the MEPS debate

Two other key (related) points:

If FM hasn't worked, why should EBFM?

Is society willing to pay the transitional costs of getting from here to there?

Case study – The SESSF



Case study – the SESSF

The multi-everything fishery

- species (20+ target, 100+ landed, 300+ caught)
- fishing methods (trawl, line, gillnet, trap …)
- ecosystems
  - sub-tropical to sub-Antarctic
  - 0 to 1500 metres
- sectors and MACs
- “your typical nightmare fishery”

Current management arrangements

- recently amalgamated to promote EBFM
- quota management is main current management tool
  - 23 species or species groups
  - ITQs since 1992

Case study – the SESSF

Current status and key drivers

- modest value of fishery (circa $60m pa)
- declining profitability in several sectors
- overall very low returns on investment
- several target species severely overfished
- large levels of discarding in trawl sector (40%)
- increasing interactions with PET species
- on-going expansion of trawl grounds
- doubling of trawl effort since ITQs introduced!
- very rapid current expansion of auto-longlining sector
- EPBC conditions for on-going certification

Case study – the SESSF

Moves towards EBFM solutions

- recognition that there is a crisis
- recognition that current management tools are not working
- broad stakeholder support for the AMS project

The AMS project

- MSE approach
- looking for integrated solutions to address all problems (ecological, economic, social …)
- very experienced multi-disciplinary project team
- strong stakeholder governance (industry, NGOs, key agencies)
- one year into three year process

Case study – the SESSF

AMS outcomes to date

- qualitative MSE completed
- four contrasting management strategies evaluated
- outcomes evaluated across broad range of performance measures
- long term solution points to integration of QMS, effort reductions, gear controls and strong spatial management
- main problem is severe transitional costs
- more detailed quantitative phase using Atlantis model to come

Case study – the SESSF

What to conclude about EBFM from this example?

- strong resonance with several issues from MEPS debate
  - Too much effort (why haven't ITQs worked?)
  - Nowhere to hide
  - Biggest issue is transitional costs and societal WTP
    - Rapid progress or war of attrition?
    - Hard to progress from a crisis
- longer term solutions don't involve new measures or magic bullets
  - do involve more sensible integration across existing measures
  - EBFM is nothing new?
- note potential value of qualitative MSE approach
- addressing failures in governance?

Where have we got to?

Science driving policy driving science?

Lots of development on the “supporting tools” front

- indicators, ERA, MSE, bioregionalization, …

Some evidence of benefits of WOG approach

- but hasn’t entirely stopped inter-agency rivalry!

Benefits of the Australian co-management model?

- steering a path between Hilborn and Pauly?

Signs of progress, but a long way to go to see the benefits

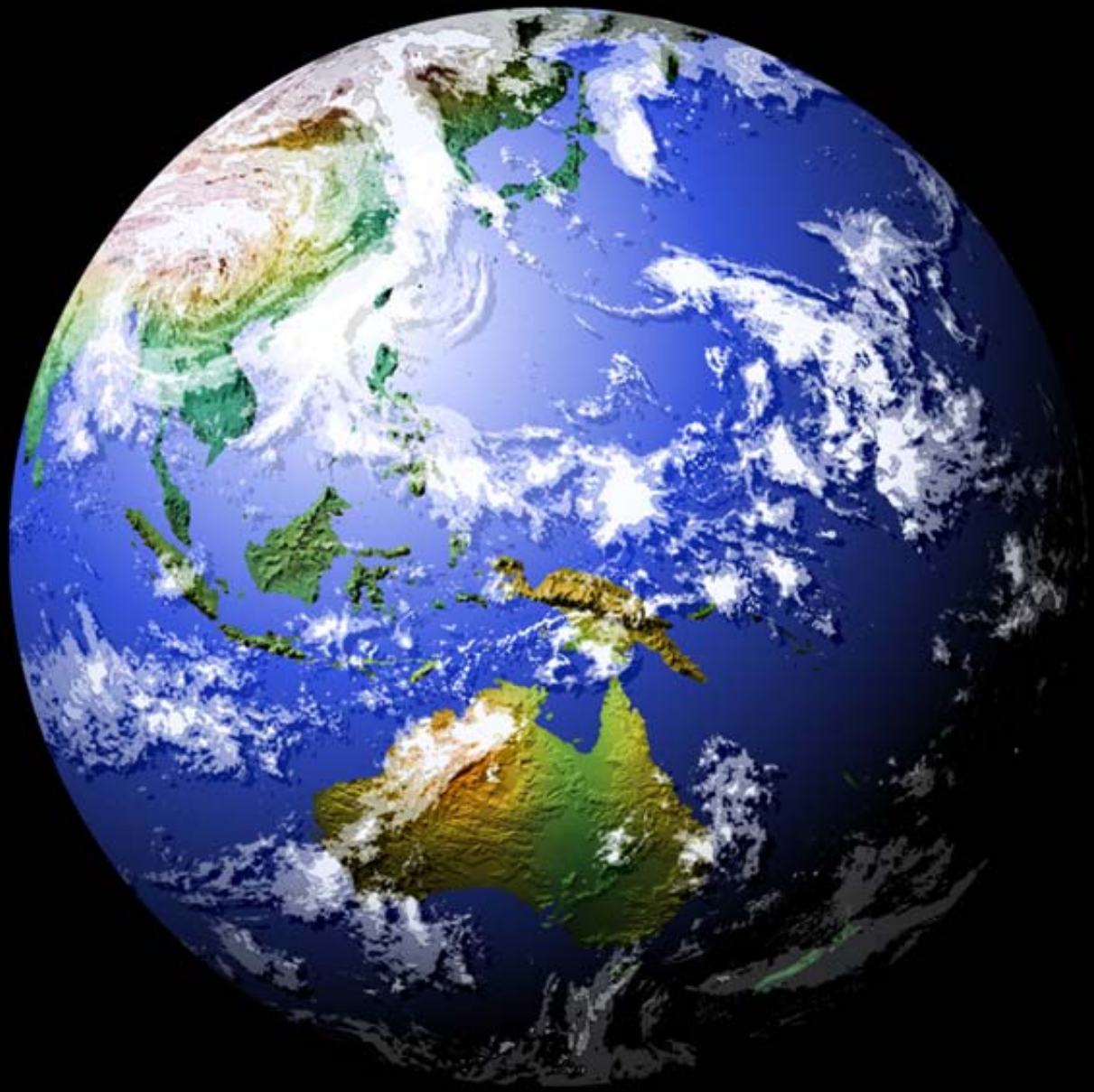
Topics for discussion

Governance models for (EB)FM

Which incentives work and why?

The science / policy / management interface

Linking EBFM to EBM

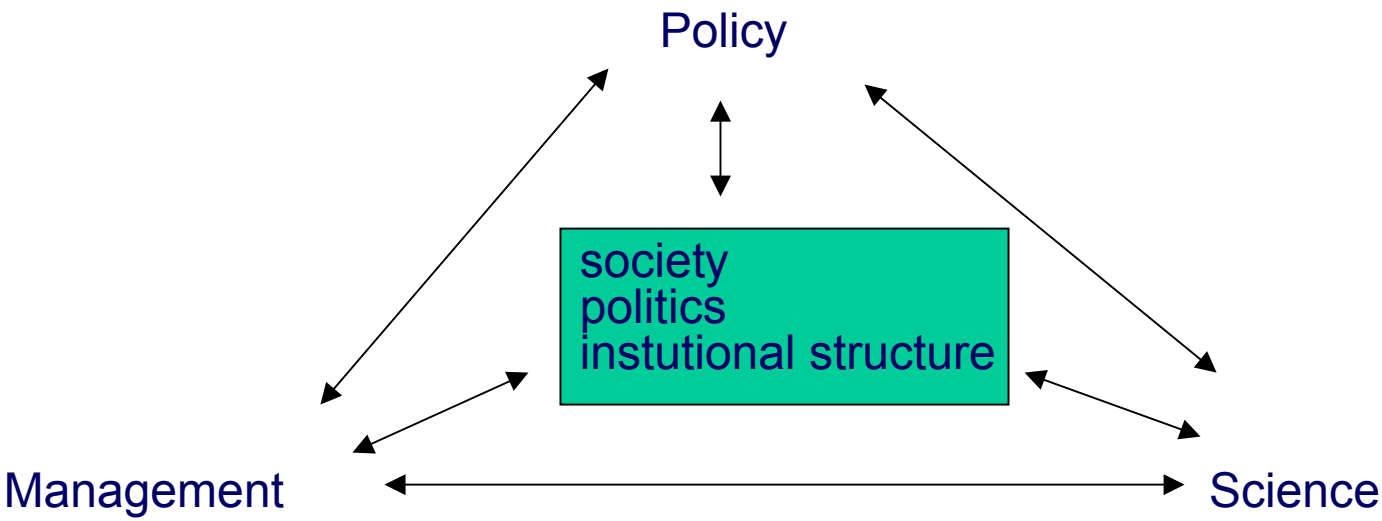


The many-faceted policy, management science interface

Who is leading who? Cause of much confusion, misunderstanding and 'friction'

Policy (representing social values and political directions) ⇨ institutional structure ⇨ management ⇨ science

Science (embodying new understanding and what is technically possible) ⇨ policy ⇨ management ⇨ institutional structure



All links are operational at different times with different strengths and for different purposes (or utility)

The many-faceted policy, management science interface
- The marine policy landscape

Marine policy now

Sust. Env. Comm. Of Cabinet
- now governing body of NOO

Nat. Res. Man. Ministerial Council

Nat. Res. Man. Standing Committee
- Head of portfolio agencies for use and conservation of natural systems
- DEH, AFFA, CSIRO

Marine and Coastal Committee
- Heads of operational agencies for use and management of marine systems
- NOO, DEH marine, AFFA marine, AFMA, CSIRO Marine

Aust. Fisheries Managers Forum
- Heads of fisheries management agencies

Marine policy in most of past 10-15y

Sust. Env. Comm. of Cabinet
- high level policy

Ministerial Councils
• Fisheries and Forestry MC
• ANZ Env. and Cons. Council

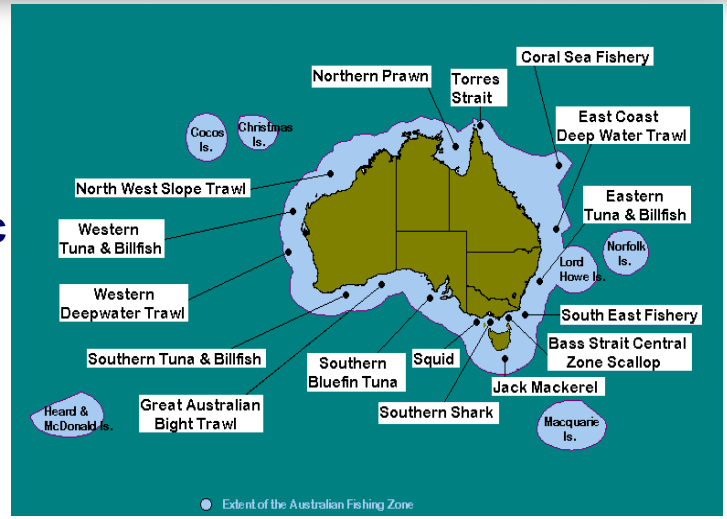
Standing Committees
• Fisheries and Aquaculture
• Conservation
• Environmental Protection
- Variously Heads of portfolio agencies and operational agencies (DEH marine, AFFA marine, CSIRO Marine, AFMA)

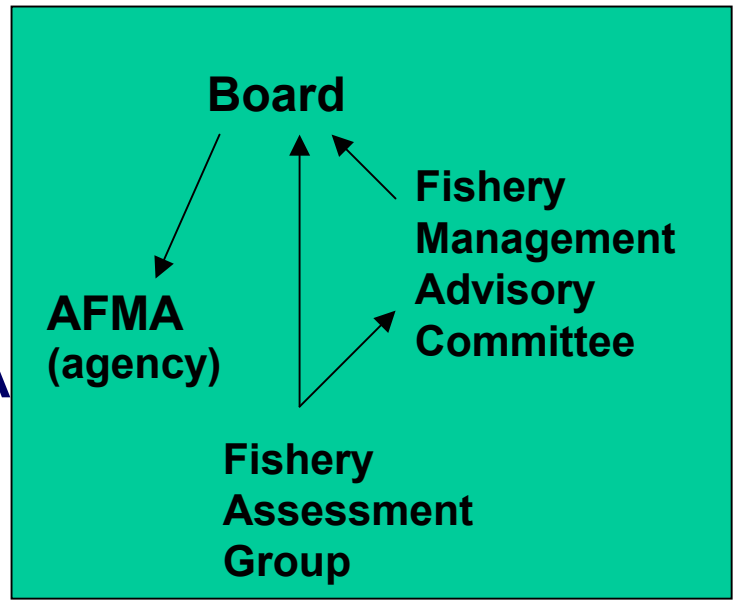
⇨ Policy environment for science input to development of fisheries ESD and Oceans Policy

The many-faceted policy, management science interface

- The Commonwealth fishery management system

- **Australian Fisheries Management Authority**
  - federal Statutory Authority for day-to-day management at arms length from politics
  - objectives of ecological sustainability and economic efficiency in legistlation
  - Policy and international interactions through Dept
- **An expertise based Board**
  - no more than 2 of 5 Directors directly involved with the fishing industry
- **A partnership and approach**
  - industry, scientific, conservation, and recreational fishing interests on Management Advisory Committees
- **Science provided independently from AMFA and fishery assessments reported directly to Board**
- **Environment for operational science input**





The many-faceted policy, management science interface

- Science connected at many levels in both policy and management
  - both AFMA and CSIRO are statutory authorities at ‘arms length’ from policy and politics
  - a ‘two edged sword’
  - respected independent views vs troublesome, isolated or uncoordinated?
- Independent science that is well linked to policy and management
  - CSIRO participates in its own right in many policy settings, and as a science provider in management
  - a balancing act
  - but one of the main factors that has allowed science in marine affairs to be so strong
- The ability to change or select the ‘vehicle’ that is most appropriate for development, demonstration, uptake and impact has also been critical
  - State, Commonwealth, national, international
  - policy, operational
- The ability to bring different science to policy and to management
  - broad and conceptual for policy
  - specific and practical (‘unpacking conceptual objectives’ for management

National ESD Reporting Framework

- Structured method to ‘unpack’ high level objectives

Establish the hierarchy between high level and operational objectives

High level objective	Broad statement of intent
Component	A major issue of relevance
Operational objective	Objective with direct and practical interpretation
Indicator	Something measured to track an operational objective
Reference point	Target and limit 'benchmarks' for indicators
Performance measure	Relationship between indicator and benchmark

- High level objectives need operational objectives
- Operational objectives need indicators and reference points (beware the “floating indicator”)
- Indicators and reference points give performance measures

What components need to be addressed?

Identify the components relevant to the higher level objectives
- provided by special sessions of the Standing Committee

Ecological well-being

- Retained species
- Non-retained species
- Other environmental issues

Human well-being

- Indigenous
- Local and regional
- National social and economic

Ability to achieve

- Governance
- Effects of environment & other users

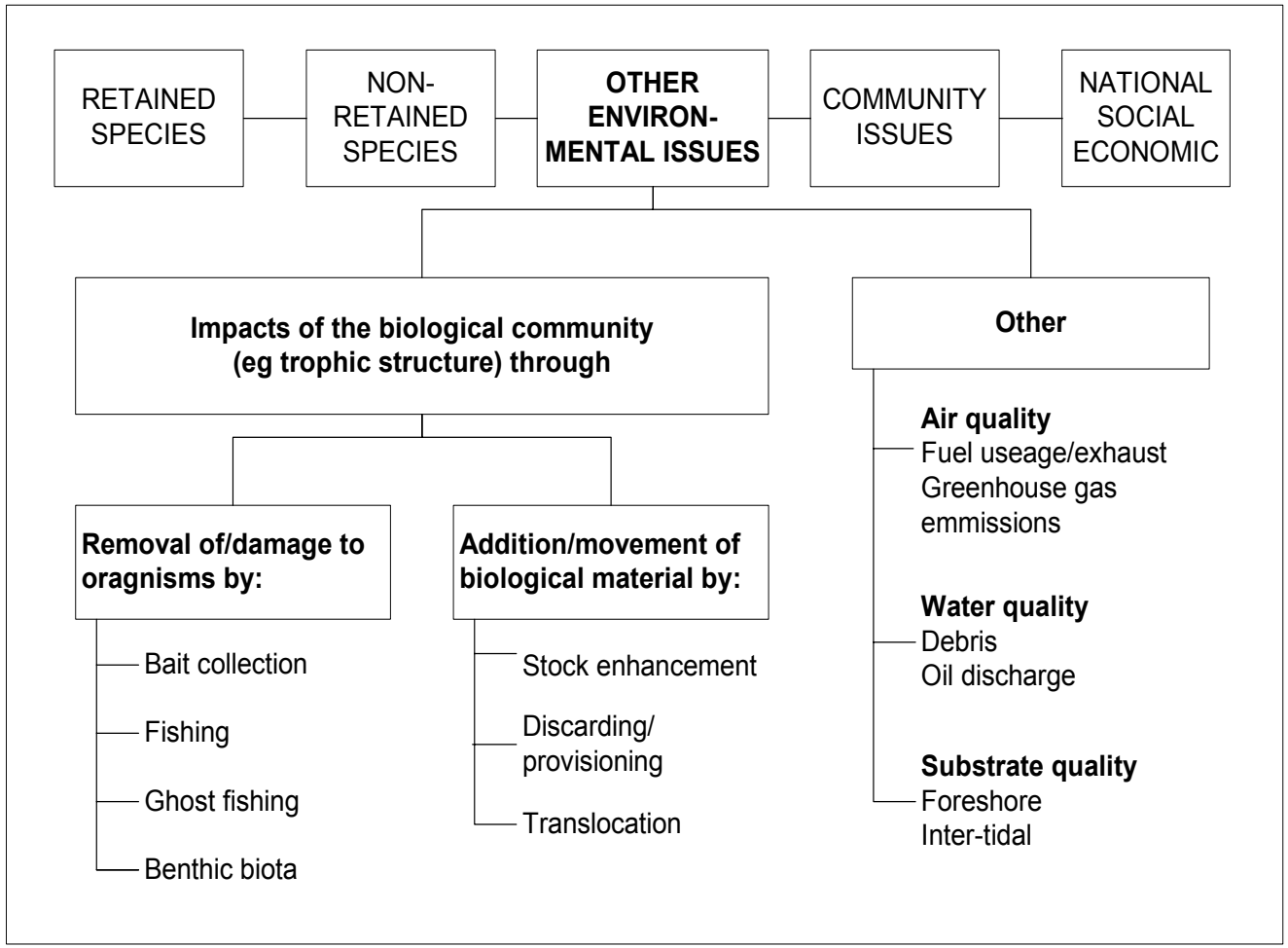
Commonwealth fisheries Ecological Risk Assessment emphasizes biophysical

- target species
- by product and by-catch species
- threatened, endangered and protected species
- habitats
- ecological communities, including food-web dependencies

Recent developments of EBFM uses the same components but emphasize starting with ecosystem issues and ending with target species issues

Example ‘component tree’ linking high level to operational objectives

- Starting with the ‘ESD Components’
- Risk assessment to identify and weight important branches
- Report for each terminal
  - objectives
  - performance measures
  - monitoring
  - management response
- Transparent, simple & flexible reporting framework



Fisheries ESD

This approach to reporting adopted by Standing Committee and by Ministerial Council

- is still the basis of FRDC emphasis and applications by some some jurisdictions.
- is not mandated to meet EPBC requirements, so many jurisdictions are using other structures but these are strongly influenced
- the Commonwealth Ecological Risk Assessment and related MSE approaches are developing another and more scientifically rigorous approach

The effective interaction of science, policy and legislation has provided very rapid development of policy, management and science for ESD in fisheries

- although the process has been very ‘fluid’ and the journey is far from over
- FRDC recently commissioned another national review of progress (same team)

It has had wide impact nationally and internationally

- is the basis of much of the FAO recommendations on the Ecosystem Approach to Fisheries
- mutual interaction with Marine Stewardship Council on operational interpretations

Summary

Constraints (process)

- Coinvestment funding requirements sometimes stopped necessary science developments, but we seem to be getting that balance better
- instutional frameworks, policy makers, managers and other stakeholders differentially informed
    - chose carefully, time to inform, forum to inform, sometimes delays or blocks

Constraints (technical)

- Data structures and access across and within agencies (incl CMR) a serious problem
- Approaches to uncertainty in model structure and parameter values poorly developed for complex models.
- Methods for risk assessment and management strategy evaluation for MUM poorly developed.
- Balancing comprehensiveness and computational speed in coupled biophysical and socioeconomic models.

Overview of science-policy influence

- There have been major mutual influences between science and policy
- MUM and integrated management was virtually unheard of 10y ago, now it’s hard to avoid

Summary

My general observations on engaging the science-management-policy interface

• It takes time - lots of time.

• It takes a lot of interaction with a lot of diverse groups who may have very different perspectives to accommodate/overcome.

• The path is never straight, and rarely goes entirely as planned. There is frequent need to change tacks, and often the entire ‘vehicle’, and to have multiple ways of achieving or supporting key developments.

• Partial successes can still be valuable if they can be consolidated and built on later.

• Engagement is a necessary part of uptake and implementation of science in natural resource management. MUM is human management.